

# **Why Do Children Work in Developing Countries?**

## **A Review of Theoretical Studies on Child Labor**

**SAKAMOTO Shunsuke\***

## Why Do Children Work in Developing Countries? A Review of Theoretical Studies on Child Labor

SAKAMOTO Shunsuke\*

This study explains why children work in developing countries by reviewing theoretical research on child labor. Roughly, over the past 15 years, a growing number of economic studies have investigated the incidence of child labor. Some theoretical studies examine why child labor persists in the context of labor market equilibrium and others analyze what determines the supply of child labor in the framework of household utility maximization. Studies reviewed here suggest that low household income is not the sole cause of child labor and that a variety of factors related to a child, parents, and household, such as credit constraints, household size and composition, schooling costs, a child's innate ability, and the balance of bargaining power between parents, also affect the incidence of child labor.

---

\* 城西大学助教 Assistant Professor Josai University

## 1. Introduction

A huge number of children work, even in today's world. The International Labour Organization (ILO) estimated that in 2008, 215 million children aged between 5–17 years were working as child laborers.<sup>1</sup> This figure represents 13.6% of total children in that age group in the developing world. Of 215 million child laborers, 59.3% are boys and 40.7% are girls. By region, Asia and the Pacific together have the most working children (114 million), but the incidence rate of child labor is the highest in Sub-Saharan Africa (25.3%). Worldwide, roughly 115 million children are engaged in hazardous work.<sup>2</sup>

Because such a great number of children work instead of attending school and often work under hazardous conditions, policy has focused on eradicating child labor by both alleviating poverty and observing international labor standards in the developing world, thus drawing increased academic attention. Since the mid-1990s, a number of economic studies focusing on child labor, both theoretical and empirical ones, have been rapidly emerging.

The present study reviews theoretical research on child labor to explain why children work in developing countries. We first review studies explaining the persistence of child labor and then studies analyzing the factors causing child labor.<sup>3</sup>

- 
- 1 “Child labor” was newly defined by resolution concerning statistics of child labor adopted by the 18th International Conference of Labour Statisticians held in 2008. Children aged 5–17 years are identified as engaging in child labor if they are in the worst forms of child labor such as hazardous work. Children in nonhazardous work can also be included in child labor if they are below the minimum age (i.e., 5–11 year-old children) or if they are 12–14 years old in nonlight work (14 or more work hours per week). For details on the definition of child labor, see ILO (2008).
  - 2 For the latest statistics on child labor, see Diallo et al. (2010).
  - 3 For earlier reviews of theoretical or empirical studies on child labor, see, for example, Basu (1999), Basu and Tzannatos (2003), Brown, Deardorff, and Stern (2002), Dar et al. (2002), and ILO-IPEC (2003).

## 2. Persistence of child labor

Several theoretical works describe the incidence of child labor in the context of the existence of multiple stable equilibria. Basu and Van (1998) construct a labor market model with two stable equilibria: higher wages and no child labor, and lower wages and full child labor.<sup>4</sup> The model relies on two critical assumptions called the Luxury Axiom and the Substitution Axiom. The Luxury Axiom states that “A family will send the children to the labor market only if the family’s income from nonchild labor sources drops very low,” indicating positive correlation between household poverty and child labor. The Substitution Axiom states that “From a firm’s point of view, adult labor and child labor are substitutes. More specifically, child labor can be substituted by adult labor,” suggesting the substitutability between adult and child labor. Although such assumptions need to be tested empirically, they suggest causes for the persistence of child labor in developing countries.

Emerson and Souza (2003) also suggest that multiple equilibria exist, explaining the persistence of child labor. They construct an overlapping generations model where a household maximizes its utility over current consumption and children’s future human capital achievement. Assuming that current investment in education lowers current earnings of children but raises future wage rates through human capital formation, they demonstrate that two stable steady state equilibria exist, zero and full investment in education, which indicates that less parental human capital correlates with less investment in their children’s education. This implies the persistence of a lower level of human capital investment between generations, that is, the intergenerational persistence of child labor, which they call a “child labor trap.” Analysis of household survey data from Brazil empirically supports this theoretical prediction.

Considering household welfare, Baland and Robinson (2000) suggest that the incidence of child labor can be inefficient in a two-period model where altruistic parents choose bequests, a child’s working time, and savings to maximize their own

---

4 A simplified version of the model is described in Basu (1999).

utility in imperfect capital markets. They demonstrate that if either bequests or savings is zero, the marginal return to education exceeds the opportunity cost of schooling, which implies that the level of child labor in this situation is inefficiently high. The model indicates that poverty and lack of altruism cause such an inefficiently high incidence of child labor because less parental endowment (fewer efficiency units of labor) and lower parental altruism toward children lead to zero bequests.

Bommier and Dubois (2004) introduce a child's disutility from labor into Baland and Robinson's (2000) model. They demonstrate that the level of child labor can be inefficiently high even if capital markets are perfect and parents' transfers to children are positive.

These studies theoretically explain the persistence of child labor in developing countries, suggesting the difficulty in eliminating child labor from our world.

### **3. Determinants of child labor**

Reflecting the reality that the developing world has long had a large number of child workers, the economic research concerning child labor has necessarily focused on analyzing factors that cause child labor. Recently, a growing number of studies have attempted to identify the determinants of child labor in developing countries, both theoretically and empirically.

To determine why parents decide to send the child to work rather than school, theoretical studies typically analyze a household's decision-making problem. Such studies, in the framework of a household's utility maximization in a dynamic economy, identify the conditions under which parents choose to send the child to work instead of school.

Depending on their assumptions about a household's decision-making process, these studies fall into two different categories. One uses the unitary household model where a household is a single unit in a decision-making process, and the other uses the collective household model where individuals in a household have different preferences. In the unitary household model a household acts like a single individual

so that it maximizes its own utility, whereas in the collective household model a household maximizes a weighted sum of household members' utilities. If bargaining power between household members varies substantially (typical in developing countries), the collective household model is more suitable for analyzing a household's utility maximization problem.

The following subsections separately review these two different models.

### **3-1 Unitary household models**

Ranjan (1999) demonstrates in a two-period model that credit markets play a critical role in parental decisions on child labor in developing countries. By comparing the levels of household utility where parents send the child to work or to school, he finds that if credit markets exist, parents send the child to school as long as the rate of return to education is greater than the market rate of interest, which implies that parental decisions in this situation never depend on the level of household income. However, the model indicates that without credit markets households with income beyond the threshold send the child to school whereas households with income below the threshold send the child to work because of credit constraints. To reduce child labor he suggests government policies, such as releasing households from credit constraints and providing income support for poorer households.

An overlapping generations model by Ranjan (2001) demonstrates that without credit markets the economy's inequality in income distribution causes child labor. He also demonstrates that although an increase in the skilled labor wage reduces child labor, changes in the unskilled labor wage have an ambiguous effect on child labor because a higher unskilled labor wage increases the current return from sending the child to work as well as the current income of the unskilled household. Therefore, he suggests an income redistribution policy to reduce child labor.

Tanaka (2003) analyzes the relationship between child labor and public education financed by government tax revenue in the framework of the majority voting rule. He compares the levels of household utility where parents send the child to work or to school for a given tax rate and then demonstrates that if the income level of the median household is below the threshold, the equilibrium tax rate becomes zero,

which causes no provision of public schooling, resulting in a large number of child laborers in the economy. He concludes that income redistribution to raise the income of the median household reduces child labor.

From a perspective of empirical application, Bhalotra and Heady (2000) construct a two-period model of a household that uses child labor in an agricultural farm. The model incorporates imperfections of both labor and credit markets, and has the wage children receive in the second period as a function of their labor supply and schooling in the first period<sup>5</sup>, whereas the household's second period financial wealth is a function of the same in the first period, land ownership, and household characteristics. They predict that under household utility maximization the quantity of child labor supply in the first period is determined by land area owned, household consumption in that period, and household characteristics such as schooling costs, access to credit, land productivity, and household size and composition. They also demonstrate that a change in farm size (land area owned) has an ambiguous substitution effect as well as a negative income effect on child labor and then empirically confirm these theoretical predictions using household survey data.

Rosati and Tzannatos (2003) analyze a household's behavior concerning child labor in cases where parents are altruistic or nonaltruistic toward children. They introduce endogenous fertility into the model and examine the factors that affect a household's decision on fertility and child labor. In a two-period model where altruistic parents choose the number of children (fertility), as well as the child's time devoted to work to maximize the household's utility, they demonstrate that without a capital market, household income has a negative effect on the child's working time and an ambiguous effect on fertility. The model also indicates that the direct cost of schooling has an ambiguous effect on child labor because in the long term an increase in schooling costs might lower fertility in a household and lead to children receiving more schooling and performing less work, which offsets the short-term positive effect on child labor. The model also demonstrates that an increase in the returns to human

---

5 The model assumes that the labor supply of children results in more work experience as well as less educational attainment.

capital investment for children has an ambiguous effect on child labor because parents transfer part of children's increased future resources to current consumption by increasing child labor, which offsets the negative effect of increased returns to education on child labor.<sup>6</sup>

In addition, they construct a three-period model where nonaltruistic parents think of the children as assets such that children, after becoming adults, repay the transfer parents made to them in childhood. The model incorporates uncertainty about the repayment of transfer from children to parents. They demonstrate that household income has a positive effect on fertility and an ambiguous effect on child labor because increased fertility lowers investment in each child's human capital and instead increases child labor, which offsets the negative effect of household income on child labor. The model further indicates that expected repayment of transfer from children to parents, measured by the average probability of repayment, affects both fertility and child labor in the same direction. They also demonstrate that increased uncertainty about repayment of transfer expected from children, measured by a variance of the probability of nonrepayment, increases both fertility and child labor, implying that parents use child labor as an insurance.

Bacolod and Ranjan (2008) examine a child's ability and emphasize the interaction between that ability and household income as a factor causing child labor. They construct a two-period model where a household maximizes its utility under credit constraints, given the time constraint for children (work, education, and idleness) and a child's ability. They assume that the wage children receive in the second period depends on both their ability and time devoted to education. The model predicts that children from the poorest households work but with sufficient ability also attend school. They also demonstrate that children from wealthy households but with low ability become idle (neither work nor attend school). They confirm these theoretical predictions using household survey data.

---

6 The authors note that in the corner solution where the child's time is devoted to work only, the effect of increased returns to education on child labor is negative.



### 3-2 Collective household models

Basu (2006) demonstrates that the balance of bargaining power between parents in a household's decision making affects the incidence of child labor. Assuming that the mother and the father each has her/his preference for different consumption goods and that both of them pay the cost of sending the child to work, he constructs a model where a household maximizes the sum of utilities of both parents weighted by each parent's bargaining power.<sup>7</sup> When the preference function for consumption goods is linear, the model predicts that a corner solution occurs where only one of two different goods is consumed and then that the relationship between the mother's bargaining power and the incidence of child labor is U-shape such that if the mother's power is smaller, child labor decreases with it and if the mother's power is greater, child labor increases with it. However, he also demonstrates that the U-shape is inverted in a more general case where the preference function is strictly concave.

Given that a corner solution is more likely to occur when either the mother or the father has dominant power, he concludes from the aforementioned predictions that the relationship between the mother's power and the incidence of child labor is W-shape such that the U-shape appears if the bargaining power is disproportionately assigned between the mother and the father in a household and the inverted U-shape if the power is balanced between them.

Ray and Basu (2001) also use a collective model where a household maximizes the sum of utilities of the mother and the father weighted by each parent's bargaining power to explain the incidence of child labor. They assume that a parent has his/her preference over two different goods and the child's leisure and that both parents regret sending the child to work. Consistent with the results in Basu (2006), the model predicts that as the power of the mother rises, the amount of child labor

---

7 Although the model assumes that the balance of bargaining power between parents is exogenous in the analysis of child labor, he makes, when analyzing the mother's labor supply, an interesting assumption that the balance of power is endogenously determined; that is, the mother's bargaining power increases with her exact income contribution to the household (the wage rate multiplied by hours worked), revealing stable multiple equilibria, one being more and the other being no labor supply of the mother.

initially falls and then rises, indicating a U-shape relationship between the mother's power and the incidence of child labor. They find empirical evidence for such theoretical prediction using household survey data.

#### **4. Conclusion**

We reviewed theoretical studies on child labor and noted that a variety of factors influence child labor in developing countries, among which a low household income seems to be one of several important causes. Several studies based on the unitary household model indicate that the incidence of child labor results from credit constraints, income inequality, farm size, household size and composition, schooling costs, returns to education, uncertainty about transfers from children to parents, and even the child's innate ability. Moreover, studies based on the collective household model indicate that the balance of bargaining power between parents in a household can affect the incidence of child labor.

These theoretical predictions require empirical verification. In fact, a growing body of empirical research based on the unitary household model has explored the determinants of child labor using household survey data from Asia, Africa, and Latin America. Some studies find a positive correlation between household poverty and the incidence of child labor, whereas others find no such relationship and suggest as determinants of child labor a variety of individual, household, and community characteristics such as the presence of siblings, low parental educational attainment, and high costs of schooling. Because in developing countries one parent typically has dominant bargaining power in a household's decision making, including the choice of child labor, further empirical research based on the collective household model is required.

All the studies reviewed analyze the supply side of child labor, a household's decision on sending the child to work. However, child labor does not always arise from the supply side, and a firm's decision on employing children can also affect the incidence of child labor in developing countries. Therefore, we should direct more attention to the demand side of child labor. Very few studies analyze firm demand for

child labor.<sup>8</sup> Considering both the supply and demand sides, we can develop more effective policies to reduce child labor in the developing world.

### References

- Bacolod, Marigee P. and Priya Ranjan (2008) “Why Children Work, Attend School, or Stay Idle: The Roles of Ability and Household Wealth”, *Economic Development and Cultural Change*, 56 (4): 791-828.
- Baland, Jean-Marie and James A. Robinson (2000) “Is Child Labor Inefficient?”, *Journal of Political Economy*, 108 (4): 663-79.
- Basu, Kaushik (2006) “Gender and Say: a Model of Household Behaviour with Endogenously Determined Balance of Power”, *The Economic Journal*, 116 (511): 558-80.
- (1999) “Child Labor: Cause, Consequence, and Cure, with Remarks on International Labor Standards”, *Journal of Economic Literature*, 37 (3): 1083-119.
- and Zafiris Tzannatos (2003) “The Global Child Labor Problem: What Do We Know and What Can We Do?”, *World Bank Economic Review*, 17 (2): 147-73.
- and Pham Hoang Van (1998) “The Economics of Child Labor”, *American Economic Review*, 88 (3): 412-27.
- Bhalotra, Sonia and Christopher Heady (2000) “Child Farm Labour: Theory and Evidence”, *LSE STICERD Research Paper*, No. DEDPS24.
- Bommier, Antoine and Pierre Dubois (2004) “Rotten Parents and Child Labor”, *Journal of Political Economy*, 112 (1): 240-8.
- Brown, Drusilla K., Alan V. Deardorff, and Robert M. Stern (2002) “The Determinants of Child Labor: Theory and Evidence”, *RSIE Discussion Paper*, No. 486, University of Michigan.
- Dar, Amit, Niels-Hugo Blunch, Bona Kim, and Masaru Sasaki (2002) “Participation of Children in Schooling and Labor Activities: A Review of Empirical Studies”, *Social Protection Discussion Paper Series*, No.0221, The World Bank.
- Diallo, Yacouba, Frank Hagemann, Alex Etienne, Yonca Gurbuzer and Farhad Mehran (2010), *Global child labour developments: Measuring trends from 2004 to 2008*, International Labour Office, International Programme on the Elimination of Child Labour, Geneva: ILO.
- Emerson, Patrick M. and Andre Portela Souza (2003) “Is There a Child Labor Trap?

---

8 See Sakamoto (2012a, 2012b).

- Intergenerational Persistence of Child Labor in Brazil”, *Economic Development and Cultural Change*, 51 (2): 375-98.
- ILO (2008) *Resolution concerning statistics of child labour*, Adopted by the 18th International Conference of Labour Statisticians (November-December 2008).
- ILO-IPEC (2003) *Annotated Bibliography on Child Labour*, International Labour Office, International Programme on the Elimination of Child Labour, Geneva: ILO.
- Ranjan, Priya (2001) “Credit Constraints and the Phenomenon of Child Labor”, *Journal of Development Economics*, 64 (1): 81-102.
- (1999) “An Economic Analysis of Child Labor”, *Economics Letters*, 64 (1): 99-105.
- Ray, Ranjan and Kaushik Basu (2001) “The Collective Model of the Household and an Unexpected Implication for Child Labor: Hypothesis and an Empirical Test”, *World Bank Policy Research Working Paper*, No.2813.
- Rosati, Furio Camillo and Zafiris Tzannatos (2003) “Child Work: An Expository Framework of Altruistic and Non-Altruistic Models”, *Social Protection Discussion Papers*, 25984, The World Bank.
- Sakamoto, Shunsuke (2012a) “What Determines Demand for Skilled and Unskilled Child Labor?: Evidence from Bangladeshi Manufacturing”, *Josai University Bulletin, the Department of Economics*, 30 (1): 25-32.
- (2012b) “Determinants of the Demand for Child Labor in Manufacturing Establishments: Evidence from Bangladesh”, *Josai Keizai Gakkaishi*, 36: 21-33 (in Japanese).
- Tanaka, Ryuichi (2003), “Inequality as a Determinant of Child Labor”, *Economics Letters*, 80 (1): 93-97.